BTL-3000

ZETA

HYDROMASSAGE TUB FOR UPPER EXTREMITIES

USER'S MANUAL

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1 INSTRUCTIONS FOR USE

The **ZETA** series tubs serve for application of hydromassage baths for upper extremities.

The **hydromassage effect** is induced by water flow from large side jets or from microjets which are ergonomically located against the most stressed areas of the upper extremities. Hydromassage is very helpful in treatment of posttraumatic states and injuries. Hydromassage whirlpool bath is an irritation and tonisation procedure and it is also a part of therapeutic physical education. It is effective in elimination of edemas, improvement of mobility of joints and release of contractures. It brings maximum overall relaxation of organism and therefore it is optimal for spas, sanatoria, remedial institutions, sporting facilities and resorts of all kinds.

1.1 OUTWARD APPEARANCE

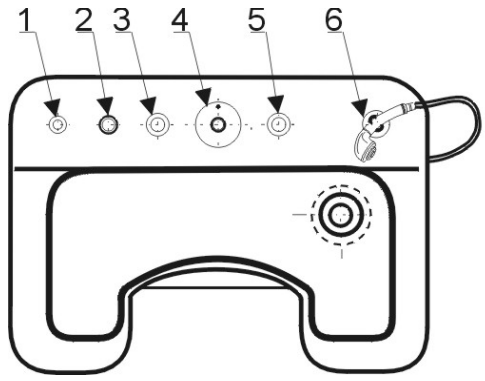
Hydromassage tubs of the Zeta series are made of progressive and high-quality materials and equipped with top equipment the technology of which predestines it for long-lasting and trouble-free operation.

The tub's skeleton made of acrylate is ergonomically and anatomically shaped and is designed and manufactured so as to achieve the maximum possible effectiveness of hydromassage and thus improve and shorten the rehabilitation procedure.

The tub is equipped with a powerful aggregate to which 2 jets and 8 microjets are connected. The system of the tub enables pulsation of hydrotherapy and smooth supply of air to all hydromassage jets.

Large enough and clearly organized control panel includes all needed controls which serve for secure and perfect operation of the whole hydromassage equipment. The tub is panelled by covering panels which are adjusted to the shape of the tub. The skeletons of tubs and control panels are supplied only in standard white colour.

1.2 CONTROL ELEMENTS



1. Control of Air regulation
2. Control of hydromassage system
3. Filling of water
4. Thermostatic mixing valve
5. Control of rinse shower
6. Rinse shower

Control and operation are intuitive and very comfortable.

- Air regulation – enables to make air flow through the jets together with water.
- Hydromassage – electronic control of hydromassage.
- Filling – to start water filling.
- Thermostatic mixing valve – automatic mixing of water to the required temperature.
- Tap for the rinse shower
- Rinse shower

1.3 FIRST START AND CONTROL

After installation disinfect the tub (see **1.4.1 General Principles of Cleaning**) and rinse its interior by the hand shower. To start the hand shower open its tap on the control panel and press the lever on the shower by the thumb.

After setting the required temperature by the thermostatic mixing valve open the "Filling" valve to start filling of water.

After filling the tub (the water top must be at least 2 cm above the highest microjet) it is possible to start hydromassage.

1.3.1 CONTROL OF HYDROMASSAGE SYSTEM

- Press the "HYDROMASSAGE" button to start the circulation pump and to activate hydromassage.
- Second pressing of the button activates pulsation.
- Third pressing of the button switches hydromassage off.

1.3.2 AIR REGULATION

The revolving air–supply regulator located on the control panel provides flowing of air into the water system of hydromassage. Opening of this regulator makes air flow through the jets and microjets together with water. This effect enables to set intensity of water flow to the required level.

1.4 MAINTENANCE AND CLEANING

1.4.1 GENERAL PRINCIPLES OF CLEANING

Foreign substances (paint, putty, etc.) on the tub surface remove carefully, best by a wooden spattle. Never use **steel wool, metallic sponges, knives or scouring washcloth**. Stains of oil or grease can be removed by **denatured alcohol**.

Never use strong solvents such as **acetone, paint thinners, benzine, ammonia or chloride agents, or abrasive polish**.

For metallic parts use special **milk or paste**, like for polishing of a car. Finally wash the cleaned parts by warm water and disinfect them by disinfectants approved by the responsible health officer.

1.4.2 CLEANING AND DISINFECTION

Regular cleaning after therapy

- After each therapy let water out, clean the tub by proper cleaner approved by the responsible health officer (e.g. Chirosan by Bochemie s.r.o.) and rinse it by the shower.
- In the hydromassage system the used water automatically runs out of the hoses (the hoses decline towards the outlet). The outflow from the pump is provided by a drain.
- The equipment's parts which come into touch with the patient should be cleaned by agents approved by the responsible health officer.

Regular cleaning and disinfection of pipes 4x per month

Since pollution by mineral sediments and scale considerably affects the activity of internal parts of the system (piping, pump), it is necessary to clean and disinfect the tub regularly.

a) Fill the tub with warm water, like before bath.
b) Pour in the water the exact manufacturer-recommended amount of disinfectant (e.g. Savagro by Bochemie s.r.o.).
c) Run the system for approx. 15 – 20 minutes.
d) Let water out.
e) Fill the equipment with warm water and rinse the whole system.
f) Run the system for approx. 10 – 15 minutes.
g) Let water out.

Special cleaning in case of use of non-standard water

If the tub is operated in a place with non-standard water (very hard water, mineral water, etc.) it is necessary to clean it and rinse the hydromassage system at least once a week. The frequency of cleaning depends on quality of water (can be found out by water analysis). For sediments use special agents for dissolution. In case of neglect of proper maintenance and cleaning, complaints will not be accepted.

1.5 PRINCIPLES OF SECURE HANDLING

This device has applied parts of type B.

The equipment does not use any medicaments or other substances which would be its integral part or would be applied by means of it.

- Before first switch-on of the equipment read carefully the User's Manual.

- The equipment must be professionally installed by an authorized representative of BTL.
- Installation and service instructions are not included in this Manual.
- All staff to use the equipment must be instructed of the way of operation, maintenance and checking of the equipment and of the safety principles.
- The electrical cabling which the equipment will be connected to must be installed and tested according to the existing valid standards (IEC 364). If you are not sure that the mains are completely OK get them inspected by an inspection engineer.
- Check if the parameters of the mains correspond to the requirements of the equipment according to Chapter 2
- The equipment is designed for work in the environment defined in Chapter 2. It must not be used in explosive environment. The equipment must not be used in connection with inflammable anaesthetics or oxidizing fluids (O_2, N_2O, etc.).
- Inspect the equipment thoroughly before each use (surface of the tub, functions of displays and controls, etc.); in case of any inconsistency stop using the equipment and contact the authorised service department. If the equipment's behaviour differs from the function described in this Manual stop using the equipment and contact the authorised BTL service department.
- If the equipment shows any defect or if you have doubts about its correct function, terminate the therapy immediately. If you do not determine the source of uncertainty after thorough study of the Manual, contact the authorised service department. If the equipment is used out of accord with this Manual or is used even if it shows functional differences from this Manual, the user is responsible for the damages caused by the equipment!
- Do not dismantle the equipment in any case, removal of protective covers implies the danger of electrical injury.
- All material and parts which come into direct contact with the patient's body must comply with the respective standards related to irritability, allergization, toxicity, genotoxicity and carcinogeneity (ISO 10993-1, ISO 10993-3, ISO 10993-5). The user is responsible for all these materials and parts if not supplied by the BTL equipment supplier.
- The equipment does not use or produce any toxic substances during its operation, storage or transport under the stated conditions.
- Before start of therapy check if all set parameters correspond to your intents.
- To terminate therapy press the respective control element, not the mains switch.
- The equipment and the accessories must not be used in a way out of accord with this User's Manual.
- At work with the equipment use the recommended protective tools.
- The equipment must be placed out of reach of children.
- Main switch use for: switching on and off in operational breaks
  at repairs and service
  at weekend downtimes
  in case of need of fast shut-down
- Do not add to the bath any liquid agents or powders, especially soaps, foams and oils, if not particularly designed for hydrotherapy systems.
- Do not leave persons with restriction in movements, mentally affected persons and children, unattended.
- Near the tub it is forbidden to use any portable electric device! Other electric devices in the room and their parts under voltage must be located and fixed so that they cannot fall into the bath!
- Put the tub into operation before the patient's entry – to prevent him/her from an unpleasant feeling at the first emission of water and air from the jets.
- Do not start the equipment if the tub is not full of water, otherwise the water pump could be damaged.
- After filling up the tub all jets must be under water.
- Before starting of the motor check if there are not any undesired things such as cloth parts, sponges and anything that could be sucked into the pump, which would cause clogging of the pipe and reduction of power or even damage of the pump.
- The equipment contains components which could cause electromagnetic interference.
- It is recommended to separate the patients' rooms from the staff rooms so that the noise level in the staff rooms is reduced (unlike the patients, the staff is exposed to noise for approx. 8 hours a day). In addition it is suitable to divide the room (at least by curtains) to separate parts, one therapy and one patient each. In case of need extend the anti-noise measures.
- If after many years of operation it is necessary to discard the hydrotherapy equipment it is necessary to contact a specialized company dealing with this activity, or the supplier or manufacturer who will advise you on the process of liquidation, or to discard of it in a way which is usual for this type of devices. The equipment does not contain any toxic materials which could harm the environment in case of normal way of liquidation.

1.6 INDICATIONS

Hydromassage

- Post-operative states, states after injuries of locomotive organs
- Muscular atrophy

- Post-poliomyelitis states
- Peripheral paresis
- Trophic changes in extremities

1.7 COUNTERINDICATIONS

The list of counterindications is the list of cases in which the manufacturer does not recommend application of the selected therapy. Indeed the professional workplaces who are aware of the possible consequences do not need to observe these listed counterindications – all responsibility for use of the therapy, however, lies with them.

Hydromassage

- Active TB
- Allergy to therapeutic salts used in the bath
- Skin wounds (including non-bleeding)
- Eczema

1.8 TERMS OF GUARANTEE

The manufacturer provides guarantee 24 months from the date of delivery of the hydromassage tub. The guarantee expires if the equipment has been used out of accord with this Manual or in case of an unqualified intervention in the equipment. The guarantee does not apply to mechanical damage of the skeleton and panelling of the tub, neither to damage of the pump caused by incorrect handling (operation without water). In case of any defect always contact the authorized BTL service department.

Installation of tubs must be done by qualified personnel with BTL accreditation. In case of "amateurish" installation the supplier does not guarantee for the installation part of the hydromassage equipment and the defects connected with unprofessional installation. Guarantee does not apply for these defects.

1.9 ACCEPTANCE CRITERIA

When accepting the tub check if:

- the skeleton, frame and panelling of the hydrotherapy tub are not mechanically damaged and are completely OK
- the tub does not leak – there are no marks of water on the control panel and under the tub,
- all hydrotherapy subsystems and their control are functioning and trouble-free

2 TECHNICAL PARAMETERS

Type	**Zeta**
Material of the skeleton	Acrylate
Maximum volume of the tub [l]	45
Usable volume of the tub [l]	30
Time of filling [min]	3
Time of drainage [min]	2
Weight without water [kg]	55
Hydromassage system	x
Number of water jets	2
Number of microjets	8
Air-supply of hydromassage jets	x
Hydromassage pulsation	x
Rinse shower	x
Power supply	
maximum input	1100VA
mains voltage ~ 198 V to 252 V (230 V nominal), alternating	Yes
frequency 50 Hz	Yes
protection class I (according to IEC 536)	Yes
Internal chemical sources	No
Classification	
applied parts of type	B
class according to MDD 93/42/EEC	IIb

"x" – standard, "o" – optional, "-" – no

2.1 TRANSPORT AND OPERATING CONDITIONS

Identification BTL-3000 Series System

Operating conditions

ambient temperature	+ 10 °C to + 40 °C
relative humidity	30 % to 75 %
atmospheric pressure	700 hPa to 1060 hPa
position	on legs
type of operation	continuous

Transport and storage conditions

ambient temperature	- 10 °C to + 55 °C
relative humidity	25 % to 85 %
atmospheric pressure	650 hPa to 1100 hPa
position	on legs
storage time	max. 1 year
other conditions	transport only in the supplied packaging

2.2 APPLICABLE STANDARDS

No.	Name	IEC, EN, ISO, MDD
1	Medical electrical equipment Part 1: General requirements for safety	IEC 601-1
2	Amendments to IEC 601-1	A2, A11, A12
3	Medical electrical equipment Part 1: General requirements for safety 2. Collateral Standard: Electromagnetic compatibility. Requirements and tests	IEC 601-1-2
4	Industrial, scientific and medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55011
5	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 2: Electrostatic discharge immunity test - Basic EMC Publication	IEC 61000-4-2
6	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 3: Radiated, radio frequency, electromagnetic field immunity test	IEC 61000-4-3
7	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 4: Electrical fast transients/burst immunity test - Basic EMC Publication	IEC 61000-4-4
8	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 5: Surge immunity test	IEC 61000-4-5
9	Medical devices - Risk Analysis	EN 1441
10	Biological evaluation of medical devices - Part 1: Evaluation and testing	ISO 10 993-1
11	The Medical Devices Directive 93/42/EEC	MDD 93/42/EEC

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